UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,333	06/30/2003	Joseph P. Odenwalder	030240	3763

23696 7590 09/22/2009

QUALCOMM INCORPORATED
5775 MOREHOUSE DR.
SAN DIEGO, CA 92121

EXAMINER	
PATEL, CHANDRAHAS B	
ART UNIT	**PAPER NUMBER**
2416	

NOTIFICATION DATE	DELIVERY MODE
09/22/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com
kascanla@qualcomm.com
nanm@qualcomm.com

Office Action Summary	Application No.	Applicant(s)	
	10/611,333	ODENWALDER ET AL.	
	Examiner	Art Unit	
	Chandrahas Patel	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 10-44* is/are rejected.

7)☒ Claim(s) *8, 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 7/22/2009 have been fully considered but they are not persuasive.

Applicant argues that Shcilling does not teach forming a covered TDM/CDM signal for transmission in CDM fashion. However, examiner disagrees. Schilling teaches multiple access method is CDMA and duplex method is TDM. Therefore, the resulting signal is TDM/CDM signal which is transmitted.

Applicant argues that Schilling does not teach a CDM signal covered with a first covering sequence, comprising one or more TDM signals, each of the one or more TDM signals comprising one or more TDM signals, each of the one or more TDM signals comprising one or more sub-CDM signals. However, examiner disagrees. Fig. 3 is teaching such a signal. Applicant argues that Schilling does not teach the despreader for dispreading the signal. However, examiner disagrees. Schilling teaches Fig. 4, 62 despreads the received signal to recover the CDM signal on which further processing is done. The signal is further despreaded to select one of the TDM signal as taught in Col. 20, lines 7-18.

Applicant argues that Tiedemann does not teach a first encoder for receiving a plurality of symbol streams for respective ones of a plurality of mobile stations and encoding each of the symbol streams with one of a plurality of covering sequences to form a covered sequence. However, examiner disagrees. Tiedemann teaches number of modulators depend on the number of channels. Each channel is assigned to each

user. Therefore Tiedemann teaches receiving symbol streams from plurality of mobile stations.

Claims 14, 19, 35, 39 and 43 as amended are discussed in the office action below.

Examiner withdraws objection to claims 11, 18 and 23 in light of amendments made to claims.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 11, 13, 16, 18, 20, 23, 24, 33, 34, 36, 38, 40, 42, 44 are rejected under 35 U.S.C. 102(b) as being anticipated by Schilling et al. (USPN 6,061,359, Herein as Schilling).

Regarding claims 11, 18, 23, Schilling teaches an apparatus and a wireless communication device, a wireless communication system, including a wireless communication device, respectively **[Fig. 3]** comprising: a plurality of CDM encoders for receiving a plurality of symbol streams and producing a plurality of covered CDM signals **[Fig. 3]**, each CDM encoder comprising: a first encoder for receiving the plurality of symbol streams and encoding each of the symbol streams with one of a plurality of covering sequences to form a plurality of covered sequences **[Fig. 3, 51, 52, 58, 151, 152, 158]**; a summer for summing the plurality of covered sequences to form a CDM signal **[Fig. 3, 45, 145]**; a time multiplexer for receiving the plurality of covered CDM signals and forming a Time Division Multiplexed (TDM) signal comprising the plurality of

covered CDM signals **[Col. 13, Table 4, Duplex method is Time division duplex as indicated in Table 4]**; and a second encoder for covering the TDM signal with a covering sequence to form a covered TDM/CDM signal configured for transmission in CDM fashion **[Fig. 3, 48, 148, Col. 13, Table 4, Duplex method is TDD and Multiple access method is CDMA thus transmitted as TDD/CDM signal]**.

Regarding claim 13, Shilling teaches a transmitter for receiving the covered TDM/CDM signal and one or more additional covered signals **[Fig. 3, 67]**, combining the covered TDM/CDM signal and one or more additional covered signals to form a combined CDM signal **[Fig. 3, 52]**, and transmitting the combined CDM signal to a remote station **[Fig. 3, 60]**.

Regarding claims 16 and 20, Shilling teaches an apparatus and a wireless communication device **[Fig. 4]**, operable with a CDM signal, covered with a first covering sequence, comprising one or more TDM signals, each of the one or more TDM signals comprising one or more sub-CDM signals, each of the one or more sub-CDM signals comprising a plurality of symbol sequences covered by a second plurality of covering sequences, respectively **[Fig. 4, antenna 77 receives signal as coded by Fig. 3, the signal is described earlier in this claim]**, the apparatus comprising: a receiver for receiving the CDM signal **[Fig. 4]**; a first despreader for despreading the received CDM signal with the first covering sequence to produce a despread CDM signal **[Fig. 4, 62, Col. 20, lines 7-18]**; a demultiplexer for selecting one of the TDM signals from the despread CDM signal **[Col. 20, lines 7-18, where each signal is TDM multiplexed as described previously in the document and 63 despreads the**

signals into in-phase and a quadrature-phase components which selects a TDM signal, Col. 13, Table 4]; and a second despreader for despreading the selected TDM signal with one of the second covering sequences to produce a recovered symbol sequence **[Col. 20, lines 19-23, 36-39, header-match filter is for TDM demodulating (described in Col. 4, lines 7-16), and data match filter selects the TDM signal to be despreaded, Col. 13, Table 4]**.

Regarding claim 24, Shilling teaches a receiver for receiving the TDM/CDM signal **[Fig. 4]**; a first despreader for despreading the received TDM/CDM signal with the first covering sequence to produce a despread CDM signal **[Fig. 4, 62, Col. 20, lines 7-18]**; a demultiplexer for selecting one of the TDM signals from the despread CDM signal **[Col. 20, lines 7-18, where each signal is TDM multiplexed as described previously in the document and 63 despreads the signals into in-phase and a quadrature-phase components which selects a TDM signal]** ; and a second despreader for despreading the selected TDM signal with one of the second covering sequences to produce a recovered symbol sequence **[Col. 20, lines 19-23, 36-39, header-match filter is for TDM demodulating (described in Col. 4, lines 7-16), and data match filter selects the TDM signal to be despreaded]**.

Regarding claims 33 and 42, Shilling teaches a method of multiplexing plurality of symbol streams **[Abstract]** and processor readable media, operable to perform the following steps **[Col. 1, lines 54-57]**, comprising: covering each of a plurality of symbol streams with one of a plurality of covering sequences to form a plurality of covered sequences **[Fig. 3, 51, 52, 58, 151, 152, 158]**; summing subsets of the plurality of

covered sequences to form a plurality of CDM signals **[Fig. 3, 45, 145]**; time division multiplexing the plurality of CDM signals and form a TDM signal **[Col. 13, Table 4]**; and covering the first TDM signal with a covering sequence to form a covered TDM/CDM signal configured for transmission in CDM fashion **[Fig. 3, 48, 148, Col. 13, Table 4, Duplex method is TDD and Multiple access method is CDMA thus transmitted as TDD/CDM signal]**

Regarding claim 34, Shilling teaches combining the covered TDM/CDM signal and one or more additional covered signals **[Fig. 3, 52]**; and transmitting the combined CDM signal to one or more remote station **[Fig. 3, 60]**.

Regarding claims 36 and 44, Shilling teaches a method of decoding a symbol sequence **[Abstract]** and processor readable media, operable to perform the following steps **[Col. 1, lines 54-57]**, comprising: receiving a CDM signal **[Fig. 4]**; despreading the received CDM signal with a first covering sequence **[Fig. 4, 62, Col. 20, lines 7-18]**; time demultiplexing the despreaded received CDM signal to select a TDM signal **[Col. 20, lines 7-18, where each signal is TDM multiplexed as described previously in the document and 63 despreads the signals into in-phase and a quadrature-phase components which selects a TDM signal, Col. 13, Table 4]** ; and despreading the selected TDM signal with a second covering sequences to produce a decoded symbol sequence **[Col. 20, lines 19-23, 36-39, header-match filter is for TDM demodulating (described in Col. 4, lines 7-16), and data match filter selects the TDM signal to be despreaded, Col. 13, Table 4]**.

Regarding claim 38, Shilling teaches an apparatus **[Fig. 4]**, comprising: means for covering each of a plurality of symbol streams with one of a plurality of covering sequences to form a plurality of covered sequences **[Fig. 3, 51, 52, 58, 151, 152, 158]**; means for summing subsets of the plurality of covered sequences to form a plurality of CDM signals **[Fig. 3, 45, 145]**; means for time division multiplexing the plurality of CDM signals and form a TDM signal **[Col. 13, Table 4]**; and means for covering the first TDM signal with a covering sequence to form a covered TDM/CDM signal configured for transmission in CDM fashion **[Fig. 3, 48, 148, Col. 13, Table 4, Duplex method is TDD and Multiple access method is CDMA thus transmitted as TDD/CDM signal]**.

Regarding claim 40, Shilling teaches an apparatus **[Fig. 4]**, comprising: means for receiving a CDM signal **[Fig. 4]**; means for despreading the received CDM signal with a first covering sequence **[Fig. 4, 62, Col. 20, lines 7-18]**; means for time demultiplexing the despreaded received CDM signal to select a TDM signal **[Col. 20, lines 7-18, where each signal is TDM multiplexed as described previously in the document and 63 despreads the signals into in-phase and a quadrature-phase components which selects a TDM signal, Col. 13, Table 4]**; and means for despreading the selected TDM signal with a second covering sequences to produce a decoded symbol sequence **[Col. 20, lines 19-23, 36-39, header-match filter is for TDM demodulating (described in Col. 4, lines 7-16), and data match filter selects the TDM signal to be despreaded, Col. 13, Table 4]**.

4. Claims 14, 15, 19, 35, 39, 43 are rejected under 35 U.S.C. 102(b) as being anticipated by Tiedemann, Jr. et al. (USPN 5,914,950, Herein as Tiedemann).

Regarding claims 14 and 19, Tiedemann teaches an apparatus and a wireless communication device **[Fig. 2, 4]**, operable with a CDM signal, covered with a first covering sequence, comprising two or more sub-CDM signals, each of the two or more sub-CDM signals comprising a plurality of symbol sequences for reception by respective ones of a plurality of mobile stations covered by a second plurality of covering sequences **[Fig. 2, 50, Col. 7, lines 28-39]**, respectively, the apparatus comprising: a receiver for receiving the CDM signal **[Fig. 2, 4]**; a first despreader for despreading the received CDM signal with the first covering sequence to produce a despread CDM signal **[Fig. 2, 40, Col. 7, lines 13-18]**; a second despreader for despreading the despread CDM signal with one of the second covering sequences to produce a recovered symbol sequence for a respective one of the plurality of mobile stations **[Col. 7, lines 16-23]**; and a decoder for extracting the recovered symbol sequence from the plurality of symbol sequences for reception by respective ones of a plurality of mobile stations, the recovered symbol sequence being directed to the respective one of the mobile stations **[Col. 7, lines 28-39, the data for the respective mobile stations is recovered and than the appropriate information and data is sent to respective mobile stations using channel scheduler]**.

Regarding claim 15, Tiedemann teaches the second despreader despreads the despreaded CDM signal with one or more additional second covering sequences to produce one or more additional recovered symbol sequences **[Col. 7, lines 16-23]**.

Regarding claims 35 and 43, Tiedemann teaches a method of decoding symbol sequence **[Col. 7, lines 13-15]** and processor readable media, operable to perform the following steps **[Col. 9, lines 2-6]**, comprising: receiving a CDM signal, covered with a first covering sequence, comprising two or more sub-CDM signals, each of the two or more sub-CDM signals comprising a plurality of symbol sequences for reception by respective ones of a plurality of mobile stations covered by a second plurality of covering sequences, respectively **[Fig. 2, 50, Col. 7, lines 28-39]**; despreading the received CDM signal with the first covering sequence **[Fig. 2, 40, Col. 7, lines 14-16]**; despreading the despreaded received CDM signal with one of the second covering sequences to produce a recovered symbol sequence for a respective one of the plurality of mobile stations **[Col. 7, lines 16-23]**; and extracting the decoded symbol sequence from the plurality of symbol sequences for reception by respective ones of a plurality of mobile stations, the decoded symbol sequence being directed to the respective one of the mobile stations **[Col. 7, lines 28-39, the data for the respective mobile stations is recovered and than the appropriate information and data is sent to respective mobile stations using channel scheduler]**

Regarding claim 39, Tiedemann teaches an apparatus **[Fig. 5, 74**] comprising: means for receiving a CDM signal, covered with a first covering sequence, comprising two or more sub-CDM signals, each of the two or more sub-CDM signals comprising a plurality of symbol sequences for reception by respective ones of a plurality of mobile stations covered by a second plurality of covering sequences, respectively **[Fig. 2, 50, Col. 7, lines 28-39]**; means for despreading the received CDM signal with the first

covering sequence **[Fig. 2, 40, Col. 7, lines 14-16]**; means for despreading the despreaded received CDM signal with one of the second covering sequences to produce a recovered symbol sequence for a respective one of the plurality of mobile stations **[Col. 7, lines 16-23]**; and means for extracting the decoded symbol sequence from the plurality of symbol sequences for reception by respective ones of a plurality of mobile stations, the decoded symbol sequence being directed to the respective one of the mobile stations **[Col. 7, lines 28-39, the data for the respective mobile stations is recovered and than the appropriate information and data is sent to respective mobile stations using channel scheduler]**.

Claim Rejections - 35 USC § 103

5. Claims 1, 2, 4, 5, 7, 10, 17, 21, 22, 25-28, 30, 32, 37, 41 rejected under 35 U.S.C. 103(a) as being unpatentable over Tiedemann, Jr. et al. (USPN 5,914,950) in view of Ho et al. (USPN 6,751,264).

Regarding claims 1, 17, 21, Tiedemann teaches an apparatus, a wireless communication device, a wireless communication system, including a first wireless device, respectively **[Fig. 5, 74]** comprising: a first encoder for receiving a plurality of symbol streams for respective ones of a plurality of mobile stations and encoding each of the symbol streams with one of a plurality of covering sequences to form a plurality of covered sequences **[Fig. 5, 146, 148, Col. 26, lines 40-50 describe each encoder is for a different channel thus plurality of encoders are associated with a plurality of devices]**; a summer for summing less than all of the plurality of covered sequences to form a first Code Division Multiplexed (CDM) signal **[Fig. 5, 170, 168, sums only**

subset of sequences as 170 does not sum sequences from 156b and 168a does not sum sequences from 150]; and a second encoder for covering the first CDM signal with a covering sequence to form a first covered CDM signal **[Fig. 5, 174]**.

However, Tiedemann does not teach a selector for selecting the summer from among a plurality of summers.

Ho teaches a selector for selecting the summer from among a plurality of summers **[Col. 19, lines 52-63, selects summer 1208 or summer 1222 depending on which signal is stronger]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a selector from the plurality of summers so that a stronger of the two signals is selected **[Col. 19, lines 52-63]**.

Regarding claim 2, Tiedemann teaches one or more channel gain blocks for receiving a plurality of gain values **[Col. 25, lines 28-31]** and multiplying the plurality of covered sequences by the plurality of gain values, respectively, prior to delivery to the summer **[Fig. 5, 160, 162, 166]**.

Regarding claim 4, Tiedemann teaches a transmitter for receiving the first covered CDM signal and one or more additional covered signals **[Fig. 5, 74 is part of transmitter as shown in Fig. 2]**, combining the first covered CDM signal and the one or more additional covered signals to form a combined CDM signal **[Fig. 5, 180]**, and transmitting the combined CDM signal to a remote station **[Fig. 2, antenna (60) transmits the signal (52) from 74 through 62]**.

Regarding claim 5, Tiedemann teaches a third encoder for receiving a second plurality of symbol streams and encoding each of the symbol streams with the plurality of covering sequences to form a second plurality of covered sequences **[Fig. 5, 172, second symbols are covered with LONG PN CODE]**; a second summer for summing the second plurality of covered sequences to form a second Code Division Multiplexed (CDM) signal **[Fig. 5, 176]**; a fourth encoder for covering the second CDM signal with a covering sequence to form a second covered CDM signal **[Fig. 5, 178]**; and a transmitter for transmitting the first covered CDM signal on an in-phase channel and the second covered CDM signal on a quadrature channel **[Fig. 2, antenna (60) transmits signal (52) from 74 through 62, Y_I and Y_Q are in-phase and quadrature channel]**.

Regarding claim 7, Tiedemann teaches the first encoder segments the encoding time into two or more segments and covers each of the plurality of symbol streams with two or more sequences **[Col. 25, lines 31-34, each segment is segmented into $BPSK_I$ $QPSK_I$ and $QPSK_2$ and covered by unique Walsh code]**, each sequence for covering during the two or more segments, respectively, and the sequence covering each symbol stream during a segment being unique to the respective symbol stream **[Col. 25, lines 34-37]**.

Regarding claim 10, Tiedemann teaches each sequence is assigned in a time varying manner **[Col. 24, lines 38-42]**.

Regarding claim 22, Tiedemann teaches a receiver for receiving the CDM signal **[Fig. 2, 4]**; a first despreader for despreading the received CDM signal with the first covering sequence to produce a despread CDM signal **[Fig. 2, 40, Col. 7, lines 14-**

16]; and a second despreader for despreading the despread CDM signal with one of the second covering sequences to produce a recovered symbol sequence **[Col. 7, lines 16-23]**.

Regarding claims 25 and 41, Tiedemann teaches a method of multiplexing plurality of symbol streams **[Col. 24, lines 1-2]** and processor readable media, operable to perform the following steps **[Col. 9, lines 2-6]** comprising: covering each of a plurality of symbol streams for respective ones of a plurality of mobile stations with one of a plurality of covering sequences to form a plurality of covered sequences **[Fig. 5, 146, 148, Col. 26, lines 40-50 describe each encoder is for a different channel thus plurality of encoders are associated with a plurality of devices]**; summing less than all of the plurality of covered sequences to form a first CDM signal **[Fig. 5, 170, 168, sums only subset of sequences as 170 does not sum sequences from 156b and 168a does not sum sequences from 150]**; and covering the first CDM signal with a covering sequence to form a first covered CDM signal **[Fig. 5, 174]**.

However, Tiedemann does not teach a selector for selecting the summer from among a plurality of summers.

Ho teaches a selector for selecting the summer from among a plurality of summers **[Col. 19, lines 52-63, selects summer 1208 or summer 1222 depending on which signal is stronger]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a selector from the plurality of summers so that a stronger of the two signals is selected **[Col. 19, lines 52-63]**.

Regarding claim 26, Tiedemann teaches multiplying the plurality of covered sequences by a plurality of gain values, respectively, prior to delivery to the summer **[Fig. 5, 160, 162, 166]**.

Regarding claim 27, Tiedemann teaches combining the first covered CDM signal and the one or more additional covered signals to form a combined CDM signal **[Fig. 5, 180]**, and transmitting the combined CDM signal to one or more remote stations **[Fig. 2, antenna (60) transmits the signal (52) from 74 through 62]**.

Regarding claim 28, Tiedemann teaches covering each of a second plurality of symbol streams with one of the plurality of covering sequences to form a second plurality of covered sequences **[Fig. 5, 172, second symbols are covered with LONG PN CODE]**; summing the second plurality of covered sequences to form a second CDM signal **[Fig. 5, 176]**; covering the second CDM signal with a covering sequence to form a second covered CDM signal **[Fig. 5, 178]**; transmitting the first covered CDM signal on an in-phase channel; and the second covered CDM signal on a quadrature channel **[Fig. 2, antenna (60) transmits signal (52) from 74 through 62, Y_I and Y_Q are in-phase and quadrature channel]**.

Regarding claim 30, Tiedemann teaches segmenting the encoding time into two or more segments; covering each of the plurality of symbol streams with two or more sequences **[Col. 25, lines 31-34, each segment is segmented into $BPSK_I$ $QPSK_I$ and $QPSK_2$ and covered by unique Walsh code]**, each sequence for covering during the two or more segments, respectively, and the sequence covering each symbol stream during a segment being unique to the respective symbol stream **[Col. 25, lines 34-37]**.

Regarding claim 32, Tiedemann teaches two or more sequences are assigned in a time varying manner **[Col. 24, lines 38-42]**.

Regarding claim 37, Tiedemann teaches an apparatus **[Fig. 5, 74]** comprising: means for covering each of a plurality of symbol streams for respective ones of a plurality of mobile stations with one of a plurality of covering sequences to form a plurality of covered sequences **[Fig. 5, 146, 148, Col. 26, lines 40-50 describe each encoder is for a different channel thus plurality of encoders are associated with a plurality of devices]**; means for summing less than all of the plurality of covered sequences to form a first CDM signal **[Fig. 5, 170, 168, sums only subset of sequences as 170 does not sum sequences from 156b and 168a does not sum sequences from 150]**; and means for covering the first CDM signal with a covering sequence to form a first covered CDM signal **[Fig. 5, 174]**.

However, Tiedemann does not teach a selector for selecting the summer from among a plurality of summers.

Ho teaches a selector for selecting the summer from among a plurality of summers **[Col. 19, lines 52-63, selects summer 1208 or summer 1222 depending on which signal is stronger]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a selector from the plurality of summers so that a stronger of the two signals is selected **[Col. 19, lines 52-63]**.

6. Claims 3, 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiedemann, Jr. et al. (USPN 5,914,950) and Ho et al. (USPN 6,751,264) in view of Agrawal et al. (USPN 6,134,215).

Regarding claim 3, the references teach an apparatus as discussed in rejection of claim 1.

However, the references do not teach using Hadamard encoders.

Agrawal teaches using Hadamard encoders **[Col. 5, lines 18-19]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Hadamard encoders to encode the symbol streams so that the codes can be used repeatedly **[Col. 5, lines 19-27]**.

Regarding claim 31, the references teach a method as discussed in rejection of claim 30.

However, the references do not teach using Hadamard sequences.

Agrawal teaches using Hadamard sequences **[Col. 5, lines 18-19]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Hadamard sequences so that the codes can be used repeatedly **[Col. 5, lines 19-27]**.

7. Claims 6, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiedemann, Jr. et al. (USPN 5,914,950, Herein as Tiedemann) and Ho et al. (USPN 6,751,264) in view of Kanterakis et al. (USPN 6,389,056, Herein as Kanterakis).

Regarding claims 6 and 29, Tiedemann teaches plurality of symbol streams comprises command values indicating acknowledgement **[Col. 8, lines 32-38]**.

However, Tiedemann does not teach command values also indicate negative acknowledgement, or acknowledge and continue.

Kanterakis teaches command values also indicate negative acknowledgement, or acknowledge and continue **[Col. 13, lines 42-50]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have command values also indicate negative acknowledgement, or acknowledge and continue so that transmission can be stopped or continued **[Col. 13, lines 42-50]**.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schilling et al. (USPN 6,061,359, Herein as Schilling) in view of Tiedemann, Jr. et al. (USPN 5,914,950, Herein as Tiedemann).

Regarding claim 12, Shilling teaches an apparatus as discussed in rejection of claim 11.

However, Schilling does not teach each encoder has one or more channel gain blocks for receiving a plurality of gain values and multiplying the plurality of covered sequences by the plurality of gain values, respectively, prior to delivery to the summer.

Tiedemann teaches encoder has one or more channel gain blocks for receiving a plurality of gain values **[Col. 25, lines 28-31]** and multiplying the plurality of covered

sequences by the plurality of gain values, respectively, prior to delivery to the summer **[Fig. 5, 160, 162, 166]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include gain blocks for signals before delivering the signals to summer so that the amplitude according to gain could be adjusted **[Col. 25, lines 39-43]**.

Allowable Subject Matter

9. Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chandrahas Patel whose telephone number is (571)270-1211. The examiner can normally be reached on Monday through Thursday 7:30 to 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2416

/Chandrahas Patel/
Examiner, Art Unit 2416